IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:	§	Group Art Unit: 2616
	§	
Fred D. Mabe, et al.	§	Examiner: C. Patel
	§	
Application No: 10/811,000	§	Attorney Docket: 03CR119/KE
	§	
Filed: March 26, 2004	§	
	§	
For: Network Routing Process For Regulating Traffic Through Advantaged And Disadvantaged Nodes	§ § §	

Commissioner for Patents
P. O. Box 1450
Alexandria, Virginia 22313-1450

APPLICANTS' BRIEF ON APPEAL TO THE BOARD

The undersigned attorney is in his 25th year of practice before the USPTO, and this may be the most egregious case of improper examination in those nearly 25 years. This is the third appeal in this case, and it immediately follows the second occurrence of reopening of prosecution after Applicants had filed an appeal brief. On June 3, 2008, Applicants filed their first appeal brief, and the Examiner responded with the subsequent non-final action dated July 10, 2008. On November 12, Applicants filed their second appeal brief, and the Examiner responded by reopening prosecution a

second time and issued the current non-final rejection. While it is not uncommon to see an Examiner replace one reference with another, here the Examiner brazenly maintains the same page and line numbers and the asserted teaching for the replaced reference and merely changes the NAME OF THE REFERENCE. See the argument below with respect to claim 17. Allowing the Examiner to reopen prosecution again now after the Applicants' third appeal brief would be an abuse of the system. The Applicants respectfully request the SPE to refuse any additional requests by the Examiner to reopen prosecution. Allowance of all claims is appropriate.

Since the Applicants had earlier paid the appeal brief fee with the first appeal brief, this third appeal brief is accompanied by only the difference between the previously paid appeal brief fee for the second appeal brief and the increased fees that are currently in effect; i.e., this Brief is accompanied by the requisite fee set forth in §41.20(b)(2), less the previously paid appeal brief fees.

REAL PARTY IN INTEREST

The real party in interest in this appeal is the assignee, Rockwell Collins.

RELATED APPEALS AND INTERFERENCES

The application on appeal is not subject to, or an element in, any other appeal or interference proceeding within the U.S. Patent and Trademark Office.

STATUS OF CLAIMS

Claims 1-22 are all of the claims filed in this application and Claims 1-22 are pending, all have been rejected and are all on appeal. No claims have been cancelled or withdrawn.

STATUS OF AMENDMENTS

No amendments to the claims or the specification have been filed subsequent to the rejection dated March 16, 2009.

SUMMARY OF THE CLAIMED SUBJECT MATTER

Without limiting the claims on appeal, the independent claims of the invention are summarized below:

Claim 1:

A process used as part of a routing protocol comprising the steps of:

a) having a plurality of nodes exchange routing advertising messages, including routing pathways through the network, including one or more metrics defining message transfer costs (see page 3, lines 1-9; NOTE: this step is well known in the prior art);

b) having one of SAID nodes CHECK TO DETERMINE if it comprises an advantaged node which MAY experience heavy network traffic, POTENTIALLY leading to traffic congestion (see page 6, lines 25-27, the last paragraph at the bottom of the page);

c) having an advantaged node ADJUST one of the metrics of a plurality of routing pathways through SAID node entered into a routing to form an updated routing table (see page 7, lines 7-21);

d) having THIS updated routing table including adjusted metrics ADVERTISED across SAID network FOR THE PURPOSE of updating the

routing tables or other nodes in the network (see page 9, lines 5-10, the first full paragraph of the page and immediately before Table 4);

Claim 5:

A process for use as part of a routing protocol in communications network featuring differentiated services wherein the network (see Fig. 4, item 50) is comprised of a plurality of nodes, each of which includes a router having (see page 10, lines 12-17) multidimensional routing information reflecting different code-point levels and defining;

routing pathways through said network for each code-point and one or more metrics;

defining message transfer characteristics for each such routing pathway for each code-point (see page 10, lines 20-23 and page 11, lines 1-15);

comprising the steps of:

a) having a plurality of said nodes exchange routing advertisement messages, including routing pathways for each code-point through said network and including one or more metrics defining message transfer costs for each routing pathway (see page 10, lines 20-23 and page 11, lines 1-15);

b) having one of said nodes check to determine if it comprises an advantaged node which may experience heavy network traffic, potentially leading to network communications traffic congestion (see page 11, lines 16-20);

c) having an advantaged node increase one or more of the metrics of a plurality of routing pathways through said node entered into a routing table by amounts based on the code-point of the entry to form an updated routing table (see page 11, lines 21-end); and

d) having said updated routing table advertised across said network for the purpose of updating the routing tables of other network nodes (see page 12 lines 1-8).

Claim 9:

A process for use as part of a routing protocol in a mobile ad hoc digital communications network composed of a plurality of nodes, each of which includes a router having a routing table including routing information defining routing pathways through said network, and one or more metrics defining message transfer characteristics for each such routing pathway, comprising the steps of:

a) having a plurality of said nodes exchange routing information, including routing pathways through said network and one or more metrics defining

message transfer costs for each routing pathway (see page 3, lines 1-9; NOTE: this step is well known in the prior art);

b) having one of said nodes calculate a measure of the degree to which it comprises an advantaged node (see page 7, lines 4-6);

c) having an advantaged node increase one or more of the metrics of a plurality of pathways through said node entered into its routing table to form an updated routing table as a function of said measure of the degree to which it comprises an advantaged node (see page 14, lines 1-9); and

d) having said updated routing table, including adjusted metrics advertised across said network for the purpose of updating the routing tables of other network nodes (see page 9, lines 5-10, the first full paragraph of the page and immediately before Table 4).

Claim 13:

A process for use as part of a routing protocol in a mobile ad hoc digital communications network comprising of a plurality of nodes each of which includes a router having a routing table including routing information defining routing pathways through said network and including one or more metrics defining message transfer characteristics for each such routing pathway, comprising the steps of:

a) having a plurality of said nodes exchange routing advertisement messages including routing pathways through said network and one or more metrics defining message transfer cost metrics for each routing pathway (see page 12, lines 1-8);

b) having one or more of said nodes check to determine if they comprise partially disadvantaged nodes (see page 3, lines 12-14);

c) having a partially disadvantaged node increase one or more of the metrics of a plurality of routing pathways through said node entered into a routing table by a substantial amount in order to discourage all but essential traffic through said node and form an updated routing table (see page 3, lines 14-21); and

d) having said updated routing table advertised across said network for the purpose of updating the routing tables of other network nodes (see page 3, lines 21-28).

Claim 17:

A process for use as part of a routing protocol in a mobile ad hoc digital communications network composed of a plurality of nodes each of which includes a router having a routing table defining routing pathways through said network and

including one or more metrics defining message transfer characteristics for each such routing pathway, comprising the steps of:

a) exchanging routing information between a plurality of said network nodes including routing pathways through said network and one or more metrics defining message transfer costs for each routing pathway (see page 3, lines 1-9; NOTE: this step is well known in the prior art);

b) generating a measure the degree to which one of said nodes may comprise an advantaged node which may experience unduly heavy network communications traffic (see page 7, lines 4-6);

c) adjusting one or more of the metrics of a plurality of routing pathways through said node as entered into its routing table as a function of said measure of the degree to which the node is an advantaged node to form an updated routing table to be used for advertising routing information (see page 14, lines 1-9); and

d) advertising said updated routing table including adjusted metrics across said network for the purpose of updating the routing tables of other network nodes (see page 9, lines 5-10, the first full paragraph of the page and immediately before Table 4).

Claim 20:

A process for use as part of a routing protocol in an ad hoc digital communications network featuring differentiated services wherein the network is comprised of a plurality of nodes each of which includes a router having multidimensional routing information reflecting different code-point levels and defining routing pathways through said network according to code-point and including one or more metrics defining message transfer characteristics for each routing pathway according to code-point, comprising the steps of:

a) exchanging routing information between a plurality of said nodes including routing pathways for each code-point through said network and including one or more metrics defining message transfer costs for each routing pathway (see page 3, lines 1-9; NOTE: this step is well known in the prior art);

b) determining if a node comprises an advantaged node which may experience heavy network traffic potentially leading to network congestion (see page 11, lines 16-20);

c) adjusting one or more of the metrics for a plurality of routing pathways through an advantaged node as entered into its routing table by amounts based on the code-point level of the entry to form an updated routing table (see page 11, lines 21-end); and

d) advertising said updated routing table including adjusted metrics across said network for the purpose of updating the routing tables of other nodes in the network (see page 9, lines 5-10, the first full paragraph of the page and immediately before Table 4).

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

GROUNDS OF REJECTIONS TO BE REVIEWED ON APPEAL

1. Whether claims 1, 5, 9, 13, 17 and 20 have been properly rejected under 35 U.S.C. §103(a) as being unpatentable over by Goringe et al., U.S. Patent No. 7,200,122 in view Lor et al. U.S. Patent No. 7,440,573

2. Whether claims 2, 3, 6, 7, 10, 11, 15, 18, 19, 21 and 22 have been properly rejected under 35 U.S.C. §103(a) as being unpatentable over Goringe in view of Lor et al. U.S. Patent No. 7,440,573. and Elliott, U.S. Patent No. 7,139,262.

3. Whether claim 4 has been properly rejected under 35 U.S.C. 103(a) as being unpatentable over Goringe and in view of Lor et al. U.S. Patent No. 7,440,573 and, Elliott and additionally in view of Kao, U.S. Patent No. 7,212,490.

4. Whether claims 8, 12 and 16 are properly rejected under 35 U.S.C. 103(a) as being unpatentable over Goringe et al. in view of Lor et al. USPN 7440,573.and Kao.

5. Whether claim 14 has been properly rejected under 35 U.S.C. §103(a) as being unpatentable over Goringe in view of Lor et al. U.S. Patent No. 7,440,573.and Sholander, U.S. Patent No. 7,177,295.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND
INTERFERENCES

ARGUMENT

1. Whether claims 1, 5, 9, 13, 17 and 20 have been properly rejected under 35 U.S.C. §103(a) as being unpatentable over Goringe et al., U.S. Patent No. 7,200,122 in view of Lor et al. U.S. Patent No. 7,440,573.

Claim 1:

The Examiner admits that Goringe does not teach: b) having one of the nodes check to determine if it comprises an advantaged node which may experience heavy network traffic potentially leading to network communications traffic congestion; and c) having an advantaged node adjust one of the metrics of a plurality of routing pathways through the node entered into a routing table to form an updated routing table.

The Examiner states:

> Lor teaches b) having one of the nodes check to determine if it comprises an advantaged node which may experience heavy network traffic potentially leading to network communications traffic congestion **[Col. 16, lines 1-20, the congestion information is determined by the access point of WLAN]**; c) having an advantaged node adjust one of the metrics of a plurality of routing pathways through the node entered into a routing table to form

an updated routing table **[Col. 16, lines 21-39, the topology of paths is changed by switching some paths that access the AP to another AP, this will change the way in which traffic is routed].**

It would have been obvious to one of ordinary skill in the art at the time the invention was made to adjust one of the metrics of a routing table so that when one of the AP gets overloaded the traffic can be rerouted through another node **[Col. 16, lines 50-67].**

However, a closer inspection of Col. 16, lines 1-20 of Lor reveals this is not correct:

),573 B2

16

The objective of load balancing is to make sure that the clients are receiving optimal WLAN accesses. To judge the effects of load balancing, most, if not all, clients must be receiving optimal services. This can be measured by clients receiving the bandwidth requested, the number of dropped packets, due to AP/WLAN switch congestion and wireless collision, and whether packets are getting the appropriate prioritization. Like the Mobility issue, another requirement for load balancing is very similar to that of mobility handoff. The same principles of session persistency and application persistency also apply here. Service interruption should be kept to a minimum.

In centralized load balancing, the load balancing decision is made by a load balancing manager. This manager can be located anywhere in the LAN; it may also be collocated with the WLAN switch. The reason for the centralized approach is to follow an overall network load balancing policy. Clients are not allowed to select whichever AP it wants. Various aspects of the load balancing requirements are discussed below.

Each and every word of the claim limitation must be fully considered. The claim limitation in claim 1 clearly states:

> "having one of said nodes check to determine if **it** comprises an advantaged node which may experience heavy network traffic potentially leading to network communications traffic congestion" (emphasis added)

The excerpt of Lor does NOT even suggest any notion of an ADVANTAGED NODE; moreover, there is nothing that suggests that a node checks ITSELF to see if it is an advantaged node. The Examiner summarizes Lor and states: "the congestion information is determined by the access point of WLAN". This makes it clear that the Examiner is equating node with the AP (access point) in Lor. However, Lines 1-20 of Lor say nothing about the AP determining traffic or congestion, and certainly not whether or not it is an advantaged node. Indeed, lines 1-20 do not state that any component of the system determines whether it is itself advantaged, assesses its own congestion or even monitors traffic through itself. However, several lines lower at lines 26-29. it makes clear that the central Load Balance Manager makes the decision to monitor traffic load from an AP zone, as well as its neighboring zones. This clearly is not saying that the APs themselves determine if they are advantaged. This is ignoring the claim limitation of having a node determine itself. Determining by a load balance manager that an AP has traffic is NOT the same as "check to determine IF IT comprises an advantaged node which MAY experience heavy network traffic,

POTENTIALLY leading to network communications traffic congestion." The present invention is directed to a system that makes a determination BEFORE congestion occurs. To ignore the words about "determining an advantaged node" and to ignore the words "about the subjunctive tense, i.e., MAY or POTENTIALLY" is a failure to consider the claim as a whole. In summary, Lor in the cited lines is unclear how it deals with congestion, but it appears to be AFTER THE FACT and does not even make a hint of making a determination of an advantaged node status based upon the mere POTENTIAL for future congestion or that it MAY experience heavy traffic. Since Goringe is admitted not to teach this, and Lor does not even HINT or SUGGEST that one should consider if a node MAY experience traffic that POTENTIALLY could lead to congestions, these references fail to establish a *prima facie* case of obviousness with respect to the claim as a whole.

Secondly, the Examiner errs in the rejection of claim 1 with respect to paragraph (c) which states:

> "c) having an advantaged node adjust one of the metrics of a plurality of routing pathways through said node entered into a routing table to form an updated routing table; and"

The Examiner compounds the problem of not having a node self determine if it is advantaged and deals with this claim limitation by merely noting that somehow Lor also adjusts routes, but the Examiner fails to even consider the limitation that it is THE ADVANTAGED NODE that adjusts one of the metrics. When a claim limitation is not

fully considered, or, as in this case, ignored (the Examiner ignores that the claim is limited to an ADVANTAGED NODE that adjusts a metric), then the case as cited by the Examiner fails to make a prima facie case of obviousness with respect to the ignored claim limitation.

For both of the reasons with respect to paragraphs (b) and (c) of claim 1, this claim is improperly rejected and now twice appealed, it is in condition for allowance and should be allowed.

Claim 5:

In addition to the (b) claim limitation discussed above (the argument for the same are hereby repeated), Claim 5 includes the limitations of:

a) having a plurality of said nodes exchange routing advertisement messages including routing pathways for each *code-point* through said network and including one or more metrics defining message transfer costs for each routing pathway;

c) having an advantaged node increase one or more of the metrics of a plurality of routing pathways through said node entered into a routing table by amounts *based on the code-point* of the entry to form an updated routing table; and

The Examiner cites Lor Col. 16, lines 21-39 as teaching changing metrics by amounts based upon the codepoint of entry. In fact, in the section cited, Lor discusses neither. The term of art "codepoint" is not mentioned. In Lor, routing is shortest path: the cost of each link is presumably the same for ALL CODEPOINTS since the word or an equivalent word is NOT mentioned; i.e., for the reasons explained with respect to claim 1 and for the reasons explained immediately above, the cited reference fails to establish a prima facie case of obviousness with respect to element (c) above because there is no mention of using codepoint for anything.

Claim 5 is believed to be allowable.

Claims 9 and 17:

Claims 9 and 17 include the same notions for claim section b as for 1 and 5 except that they include the additional notion of determining the degree to which a node determines itself to be advantaged. The arguments made with respect to claim 1 are hereby repeated. Moreover, claims 9 and 17 include the additional limitations to adjusting a metric as a function of the degree it found itself to be advantaged. In other words, since Goringe doesn't teach a node self-determining an advantaged status, it does not teach determining the degree of an advantaged status. Claim limitation 9 (c) calls for increasing a metric, which in the present invention, is very clearly understood from the claims as increasing the value of a preexisting metric. The Examiner then

again cites Lor Col 16, lines 1-20, and states that this section teaches "how much overloading is done". This is significant because it underscores the Examiner's apparent freedom to simultaneously ignore claim language and misstate teaching of the prior art. First of all, the claim language is not directed to how much overloading is present. Lastly, the cited sections do not even teach determining overloading as cited.

In summary, there is no teaching in Goringe or Lor that:

c) having an *advantaged node* increase one or more of the metrics of a plurality of pathways through said node entered into its routing table to form an updated routing table *as a function of said measure of the degree to which it comprises an advantaged node*; and

This is a compounding of omitted teachings of an advantaged node, a degree of an advantaged note and increasing a metric based upon the degree of an advantaged node. This make it clear that the Goringe reference and the Lor reference fail to provide a prima facie case of obviousness with respect to Claims 9 and 17, which are believed to be allowable.

Claim 13:

Claim 13 includes sections b and c which are based upon partially disadvantaged nodes instead of advantaged nodes. The <u>Examiner</u> admits Goringe does not teach disadvantaged nodes. The Examiner cites Lor Col. 16, lines 21-39,

which he previously cited incorrectly against other claims. The Examiner incorrectly equated congestion to load balancing in determining an advantaged node. The Examiner now cites this same passage, along with Goringe, for teaching disadvantaged nodes. However, as taught in the present invention, a disadvantaged node is never determined from congestion or load balancing. A disadvantaged node is an advantaged node which has the further problem of moving fast (e.g. a helicopter moving over the battlefield, or having some other disadvantage; e.g., low-battery). In each case, the disadvantaged node adjusts link costs to avoid most traffic.

Consequently, there is no prima facie case of obviousness with respect to claim 13. Goringe and Lor also fail to teach having a node self- determine if it is partially disadvantaged.

The Examiner's rejection of claim 17 is most egregious. Here the Examiner merely changes the name of the earlier reference to the new cited reference. The Examiner had in the other rejections at least come up with some bogus section in the new reference and cited it. Here the Examiner cited the exact same pages and lines as with the prior reference; i.e. just changed the name of the reference. No prima facie case of obviousness is made when the rejection is gibberish.

Claim 20 is improperly rejected as well. The Examiner goes back to mischaracterizing the teachings of the previously cited sections of Lor. The arguments above which address the mischaracterization of these same sections are hereby repeated.

2. Whether claims 2, 3, 6, 7, 10, 11, 15, 18, 19, 21 and 22 have been properly rejected under 35 U.S.C. §103(a) as being unpatentable over Goringe et al. in view of Lor and Elliott, U.S. Patent No. 7,139,262.

Claim 2 includes the limitation which modifies the step of having each node check to determine if it comprises an advantaged node and further includes the step of having the node calculate a ratio of the node's neighbors to the average number of its neighbors' neighbors. Claims 3, 4, 6, 10, 11, 18 and 21 either include similar limitations or depend from claim 2 or another claim including similar limitations.

The arguments for allowance of claim 1 are hereby repeated.

However, claim 2 makes it clear that an advantaged node is determined **by topology and not by congestion**. The Claim 2 topology criterion is the ratio of the number of one's neighbors to the average number of one's neighbor's neighbors. A high ratio indicates an advantaged node. Claim 1 covers the more general case in which an advantaged node may be determined by some other means. However, in either case, an advantaged node is not determined by actual measured link congestion, and in claim 2, it is more clear that topology, not congestion, is the determining factor.

The Examiner cites Col. 7, lines 41-56 of Elliott as teaching this:

> FIG. 11 is a flowchart of processing, consistent with the present invention, for selecting the N best nodes in a network neighborhood. The node **210** begins by setting a variable, I, equal to 1 [step **1110**]. The node **210** then takes each node in its neighbor table **720** and finds that node in its routing table **710** [step **1120**]. The node **210** extracts the current metric for that node from the routing table **710** [step **1130**]. The node **210** selects the node with the largest metric (i.e., the node that is the largest number of hops away) [step **1140**] and forms a network neighbor relationship with that node [step **1150**]. In essence, the node **210** selects the node that is the farthest away, since forming a direct neighbor relationship with that node will have the greatest effect on reducing the network diameter. In other implementations consistent with the present invention, the node **210** selects two or more nodes based on their metrics.

As it can be seen, Elliott, U.S. Patent No. 7,139,262 Col 7, lines 41-56, has nothing to do with calculating the ratio of the number of one's neighbors to the average of the number of one's neighbors' neighbors. Elliott has nothing to do with the same problem; i.e., advantaged nodes, and calculates no ratios in the passage cited by the Examiner for any purpose -- all contrary to the allegations of the Examiner.

In fact, Elliot addresses the well-known dilemma present in an ad hoc radio network: Should the user use a single high-power transmission to transmit the packet as far as possible, knowing that the high power transmission will deny service to others over a large area? Or, alternatively, should the user use a series of low-power

transmissions in which the packet is forwarded by one near neighbor to another through many nodes, so that each transmission denies service only to a few users, but in which the user's packet will experience a long delay? Elliott offers six techniques which he views as compromises between these two extremes, some of which involve directional antennas. However, none of Elliott's techniques address the problem addressed in the present invention in which advantaged nodes can attract too much traffic, causing excessive queuing delays, and disadvantaged nodes cannot avoid traffic which, for example, depletes their limited resources.

Elliott is not analogous art as it does not solve the same problem as the present invention. It is improper (and insufficient) to combine Elliott with Goringe. However, even if the two references are combined, they fail to teach the claimed combination. Goringe fails to teach the items discussed above with respect to the 102 rejection, and Elliott is not even cited as teaching the shortcomings of Goringe as making the 102 rejections in the last office action. Lor is not cited in this rejection for teaching anything.

3. Whether claim 4 has been properly rejected under 35 U.S.C. §103(a) as being unpatentable over Goringe and in view of Lor and Elliott and additionally in view of Kao U.S. Patent No. 7,212,490.

Claim 4 is dependent on claim 2, which in turn is dependent on independent claim 1. Claim 2 adds the neighbors-to-neighbors'-neighbors ratio test to determine advantaged nodes. Claim 4 adds the use of a non-hop count metric, namely latency.

Latency would normally be associated with link speed, but it could also be associated with queuing time. The Examiner cites Kao (U.S. Patent No. 7,212,490) as additional prior art. The Examiner cites the abstract of Kao as evidence that latency as a metric is prior art.

The Examiner does not cite Kao as teaching bolstering the 103 cases as applied to claims 1 and 5. Since claim 4 includes all of the limitations of claims 1 and 2 and Kao is not even cited as teaching the shortcomings of Goringe and Lor with respect to claim 1, the combination of Goringe, Lor, Elliot and Kao cannot make a prima facie case of obviousness with respect to claim 4; i.e., all of the arguments made above with respect to Goringe and Lor failing to make a prima facie case of obviousness with respect to claims 1 and 2 are applicable with respect to claim 4,

Allowance of dependent claim 4 is, therefore, appropriate.

4. Whether claims 8, 12 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goringe et al, and Lor in view of Kao.

Claims 8, 12 and 16 depend from claims 5, 9 and 13 respectively. The Examiner does not cite Kao as teaching bolstering the 103 cases as applied to claims 5, 9 and 13. Since these dependent claims, as a matter of law, include all of the limitations of the claims from which they depend, and Kao is not even cited as teaching the

shortcomings of Goringe and Lor, prima facie case against the claims from which they depend, the combination of Goringe, Lor and Kao, cannot make a prima facie case of obviousness with respect to claims 8, 12 and 16; i.e., all of the arguments made above with respect to Goringe and Lor failing to make out a prima facie case of obviousness with respect to claims 5, 9 and 13 are applicable with respect to claims 8, 12 and 16, and they are repeated here by this reference.

Allowance of dependent claims 8, 12 and 16 is, therefore, appropriate.

5. Whether claim 14 has been properly rejected under 35 U.S.C. §103(a) as being unpatentable over Goringe and Lor in view of Sholander, U.S. Patent No. 7,177,295.

Claim 14 introduces the important special case of having a node check to see if it is a disadvantaged node by checking its power reserves.

Claim 14 depends from claim 13 respectively. The Examiner does not cite Sholander as teaching bolstering the 103 case as applied to claim 13. Since this dependent claim, as a matter of law, includes all of the limitations of the claim from which it depends, and Sholander is not even cited as teaching the shortcomings of Goringe and Lor prima facie case against claim 13, the combination of Goringe, Lor and Sholander cannot make a prima facie case of obviousness with respect to claim 14; i.e., all of the arguments made above with respect to Goringe and Lor failing to make out a

prima facie case of obviousness with respect to claim 13 are applicable with respect to claim14, and they are repeated here by this reference.

The rejection of Claim 14 is improper.

Allowance of claims 1-22 is respectfully requested.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND
INTERFERENCES

CONCLUSION

The Applicants respectfully submit that Goringe and Lor do not provide a prima facie case of obviousness with respect to any of the claims because they do not teach a node self-determining whether it is advantaged and then self-adjusting a metric.

The Applicants believe that the application as amended should be allowed.

Respectfully submitted,

Gregory G. Williams
Reg. No. 31,681

Rockwell Collins Corporation
Intellectual Property Department
400 Collins Road NE M/S 124-323
Cedar Rapids, IA 52498

Date: August 13, 2009

CLAIMS APPENDIX

Claim 1 (original) A process for use as part of a routing protocol in an ad hoc digital communications network wherein the network is comprised of a plurality of nodes each of which includes a router including a routing table having routing information defining routing pathways through said network and including one or more metrics defining message transfer characteristics for each such routing pathway, comprising the steps of:

a) having a plurality of said nodes exchange routing advertisement messages including routing pathways through said network and including one or more metrics defining message transfer costs for each routing pathway;

b) having one of said nodes check to determine if it comprises an advantaged node which may experience heavy network traffic potentially leading to network communications traffic congestion;

c) having an advantaged node adjust one of the metrics of a plurality of routing pathways through said node entered into a routing table to form an updated routing table; and

d) having this updated routing table including adjusted metrics advertised across said network for the purpose of updating the routing tables of other nodes in the network.

Claim 2 (original) The process of claim 1, wherein:

the step of having each node check to determine if it comprises an advantaged node includes the step of having the node calculate a ratio of the node's neighbors to the average number of its neighbors' neighbors as a basis for determining if it is an advantaged role.

Claim 3 (original) The process of claim 2, wherein:

said routing protocol comprises a DSDV protocol and said metric comprises hop count, and

said step of adjusting one or more of the metrics of a plurality of routing pathways comprises incrementing the hop counts of said pathways.

Claim 4 (original) The process of claim 2, wherein:

said routing protocol comprises a link state protocol and said metric comprises latency.

Claim 5 (original) A process for use as part of a routing protocol in an ad hoc digital communications network featuring differentiated services wherein the network is comprised of a plurality of nodes each of which includes a router having

multidimensional routing information reflecting different code-point levels and defining routing pathways through said network for each code-point and one or more metrics defining message transfer characteristics for each such routing pathway for each code-point, comprising the steps of:

a) having a plurality of said nodes exchange routing advertisement messages including routing pathways for each code-point through said network and including one or more metrics defining message transfer costs for each routing pathway;

b) having one of said nodes check to determine if it comprises an advantaged node which may experience heavy network traffic potentially leading to network communications traffic congestion;

c) having an advantaged node increase one or more of the metrics of a plurality of routing pathways through said node entered into a routing table by amounts based on the code-point of the entry to form an updated routing table; and

d) having said updated routing table advertised across said network for the purpose of updating the routing tables of other network nodes.

Claim 6 (original) The process of claim 5, wherein:

the step of having each node check to determine if it comprises an advantaged node includes the step of having the node calculate a ratio of the node's neighbors to

the average number of its neighbors' neighbors as a basis for determining if it is an advantaged node.

Claim 7 (original) The process of claim 5, wherein:

said routing protocol comprises a DSDV protocol and said one or more metrics comprise hop count.

Claim 8 (original) The process of claim 5, wherein:

said routing protocol comprises a link state protocol and said one or more metrics comprise latency.

Claim 9 (original) A process for use as part of a routing protocol in a mobile ad hoc digital communications network composed of a plurality of nodes each of which includes a router having a routing table including routing information defining routing pathways through said network and one or more metrics defining message transfer characteristics for each such routing pathway, comprising the steps of:

a) having a plurality of said nodes exchange routing information including routing pathways through said network and one or more metrics defining message transfer costs for each routing pathway;

b) having one of said nodes calculate a measure of the degree to which it comprises an advantaged node;

c) having an advantaged node increase one or more of the metrics of a plurality of pathways through said node entered into its routing table to form an updated routing table as a function of said measure of the degree to which it comprises an advantaged node; and

d) having said updated routing table including adjusted metrics advertised across said network for the purpose of updating the routing tables of other network nodes.

Claim 10 (original) The process of claim 9, wherein:

said measure of the degree to which a node comprises an advantaged node is based on based on a ratio of a node's neighbors to the average number of its neighbor nodes' neighbors.

Claim 11 (original) The process of claim 9, wherein:

said routing protocol comprises a DSDV protocol and said one or more metrics comprises hop count, and

said measure of the degree to which a node comprises an advantaged node is based on a ratio of a node's neighbors to the average number of its neighbor nodes' neighbors.

Claim 12 (original) The process of claim 9, wherein:

said routing protocol comprises a link state protocol and said one or more metrics comprises latency.

Claim 13 (original) A process for use as part of a routing protocol in a mobile ad hoc digital communications network comprising of a plurality of nodes each of which includes a router having a routing table including routing information defining routing pathways through said network and including one or more metrics defining message transfer characteristics for each such routing pathway, comprising the steps of:

a) having a plurality of said nodes exchange routing advertisement messages including routing pathways through said network and one or more metrics defining message transfer cost metrics for each routing pathway;

b) having one or more of said nodes check to determine if they comprise partially disadvantaged nodes;

c) having a partially disadvantaged node increase one or more of the metrics of a plurality of routing pathways through said node entered into a routing table by a substantial amount in order to discourage all but essential traffic through said node and form an updated routing table; and

d) having said updated routing table advertised across said network for the purpose of updating the routing tables of other network nodes.

Claim 14 (original) The process of claim 13, wherein:

the step of having each node check to determine if it comprises a partially disadvantaged node includes the step of having the node check its available power reserves as a basis for determining if it may be a partially disadvantaged node.

Claim 15 (original) The process of claim 13, wherein:

said routing protocol comprises a DSDV protocol and said one or more metrics comprise hop count.

Claim 16 (original) The process of claim 13, wherein:

said routing protocol comprises a link state protocol and said one or more metrics comprise latency.

Claim 17 (original) A process for use as part of a routing protocol in a mobile ad hoc digital communications network composed of a plurality of nodes each of which includes a router having a routing table defining routing pathways through said network and including one or more metrics defining message transfer characteristics for each such routing pathway, comprising the steps of:

a) exchanging routing information between a plurality of said network nodes including routing pathways through said network and one or more metrics defining message transfer costs for each routing pathway;

b) generating a measure the degree to which one of said nodes may comprise an advantaged node which may experience unduly heavy network communications traffic;

c) adjusting one or more of the metrics of a plurality of routing pathways through said node as entered into its routing table as a function of said measure of the degree to which the node is an advantaged node to form an updated routing table to be used for advertising routing information; and

d) advertising said updated routing table including adjusted metrics across said network for the purpose of updating the routing tables of other network nodes.

Claim 18 (original) The process of claim 17, wherein:

said routing protocol comprises a DSDV type protocol and said one or more metrics comprises hop count, and

said measure of the degree to which a node comprises an advantaged node is based on a ratio of a node's neighbors to the average number of its neighbor nodes' neighbors.

Claim 19 (original) The process of claim 17, wherein:

said routing protocol comprises a DSDV protocol and said one or more metrics comprise hop count, and

said step of adjusting one or more of the metrics of a plurality of routing pathways comprises increasing the hop counts of said pathways.

Claim 20 (original) A process for use as part of a routing protocol in an ad hoc digital communications network featuring differentiated services wherein the network is comprised of a plurality of nodes each of which includes a router having multidimensional routing information reflecting different code-point levels and defining routing pathways through said network according to code-point and including one or more metrics defining message transfer characteristics for each routing pathway according to code-point, comprising the steps of:

a) exchanging routing information between a plurality of said nodes including routing pathways for each code-point through said network and including one or more metrics defining message transfer costs for each routing pathway;

b) determining if a node comprises an advantaged node which may experience heavy network traffic potentially leading to network congestion;

c) adjusting one or more of the metrics for a plurality of routing pathways through an advantaged node as entered into its routing table by amounts

based on the code-point level of the entry to form an updated routing table; and

d) advertising said updated routing table including adjusted metrics across said network for the purpose of updating the routing tables of other nodes in the network.

Claim 21 (original) The process of claim 20, wherein:

determining if a node comprises an advantaged node includes the step of calculating a ratio of the node's neighbors to the average number of its neighbors' neighbors.

Claim 22 (original) The process of claim 20, wherein:

said routing protocol comprises a DSDV protocol and said one or more metrics comprise hop count, and

said step of adjusting one or more of the metrics for a plurality of routing pathways comprises incrementing the hop counts of said pathways.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND
INTERFERENCES

EVIDENCE APPENDIX

None

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND
INTERFERENCES

RELATED PROCEEDINGS APPENDIX

None